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Communications.

APHASIA—A SEQUELA OF GRAVE RENAL DISEASE.

[Translated from Proof-sheets furnished by the Author, Dr. Raginsky, of Nordhausen, Germany.]

By. Drs. Proegler and Gale,

Of Aurora, Illinois.

(*Concluded.*)

The following case is evidence of this:

Previous History.—F., 40 years old; suffering quite a while, and the object of medical treatment. A short time previously, he voided, with extreme pain sandy urine and a small gravel stone the size of a pea; from time to time he has had colic pains arising from the back, and especially the right lumbar region, shooting from this point to the lower part of the abdomen. These pains when severe are accompanied by vomiting. Later he had a circumscribed pain in the region of the stomach; aggravated by pressure; bloody-tinged matters vomited up. From this fact the attending physician, diagnosed "ulcer of the stomach" and sent the patient to Carlsbad.* He ordered for him a milk diet. Patient returned comparatively better. On the 24th of November, he began to have pain again in the lumbar region, reaching as far as the cæcal region, from thence to the left, and up to the epigastrium.

Present State—Well built man—*panniculus adiposus*—livid skin, with its temperature normal; thorax well developed; lungs and heart normal; abdomen soft, not enlarged; percussion of the liver around the *lines mammilaris*, shows an enlargement of one and a half inches below the lower rib. Epigastrium painful on pressure; tongue slightly coated and moist; nausea; patient of a nervous and fretful disposition.

R. Milk diet; Carlsbad water, to be drank in small quantity; bathe, with common salt added to bath.

The disease remained the same up to

Nov. 29, *noon.*—Heavy chills; complains of vehement pains, running in a backward direction from above, anteriorly and below, very much excited; patient rolls from side to side and moans loudly; abdominal respiration, rather hurried; temperature according to the touch a little elevated; pulse 104; radial artery narrow and a little above middle flexion; low pulse wave; tongue with a gray white coating.

R. Acid hydrochlor. in appropriate doses.

Evening.—Abnormal coolness of the skin, which is covered with a cold, clammy sweat, cool nose; cold extremities; sensorium free; patient very restless and fretful; moans from time to time. Being asked if he has severe pains, he answers, "No." Pulse 104, unchanged; respiration superficial and very hurried; physical exploration of the thorax reveals nothing abnormal.

Nov. 30, *morning.*—Sensorium a little clouded. Patient answers questions, but very hesitatingly. What is very noticeable *is the impossibili'y to talk in coherent sentences. He lacks words, and if he attempts to say anything he seeks long and with effort for the right expression.* Expression of the face painful and emaciated; the whole body covered with a cold, clammy sweat; the nostrils dilate widely with each respiration; cold extremities; epigastrium painful to the touch. Temperature in the axilla, 33 Celsius; pulse very weak, low wave, and but a very little flexion at the radial artery. Urine contains a good deal of albumen;

* A celebrated spring in Bohemia.

great quantity of pus corpuscles of different size, some with two ridges, as if furrowed; no casts; quantity of urine not measured, rather copious.

Evening.—Staring gaze; sensorium not free, pupils equally enlarged; patient moans and lisps incoherent, broken, unintelligible sounds; fights with his hands in the air, and picks his bed covering. By loud calling, the patient rouses from his wanderings, recognizes his surroundings, tries to answer questions, but seldom able to speak coherently. Pointed nose—*facies hippocratica;* blowing respiration with flying nostrils; abdomen and extremities cold—temperature 33.8 Celsius; urine very scant, mostly pus.

December 1.—He dies with aggravated symptoms.

Secitio Cadaveris—Pia mater a little cloudy, moist, shiny and easy to divide from the brain. Brain substance soft, very moist, little bloody; the substance of the *cerebrum* pons and cerebellum possessed nothing abnormal.

Both lungs impermeable to the air; from the cut surface flows an abundance of red-brown serum, nothing else abnormal.

Heart flabby, muscles of a dark, gray-brown color, very soft; the valves very thin. The blood is but little coagulated and of very dark, nearly black color.

Mucous membrane of the stomach doubled up and covered with a tenacious slime. The color of the membrane varies from gray to pale rose-red; on some parts long, slate-like striatas, probably formerly hemorrhagic patches, intermingle with recent ones of dark-brown color. Nowhere is there any ulcer or scar.

Liver soft, not anæmic, evidence of fatty degeneration.

Spleen very soft, not enlarged, the pulp of a blackish-brown color.

Kidneys: the right one is large, and enveloped in a thick mass of fat; the pelvis of the kidney contains a large calculus—a round, compact body, with coral-like points, reaching to the wide openings of the papillas; there also were small stones of the size of a pea down to the size of a pin's head. The medullary substance of the kidney is entirely gone, and in its place is a great conglomeration of pus in which the stones are embedded; the cortical substance, from which the capsule is difficult to divide, is altered into a number of small and larger abscesses. The same condition is found with the left kidney, only it is smaller, and consequently smaller stones within it; the stones, by cutting through, show a porous gray, red kernel, encircled by a dark, hard covering.

In the continuity of the detailed case there are three periods to distinguish.

In the first the symptoms arising from the kidney are placed in the foreground. The diagnosis was made through the help of microscopic examination of the urine. Sandy urine and gravel passing from the bladder together with the colic pains could only lead to the conclusion that we had to do with colic arising from renal calculi.

But later these symptoms were placed in the background, even so much that the attending physicians were misled and took the disease for an ulceration of the stomach. A fixed pain in the epigastrium augmented by pressure, repeated vomiting of sometimes bloody-tinged masses, seemed to warrant this diagnosis. The *sectio cadaveris* denies it. There were only a few hemorrhagic patches to be seen on the mucous membrane, which no doubt were the effect of the severe vomiting. It is fair to assume that bloody ejected matter from stomach in connection with surely detected renal calculi does not give sufficient ground for a diagnosis of "ulcus simplix ventriculi."

The third period was characterized by a series of nervous disturbances which made it impossible to frame a case for a routine treatment. The examination of the urine showed evidence for a diagnosis of an ulceration of the kidneys, and the previous history of voiding stones, left no doubt that they were the cause of the ulceration. With all this the case is one rather difficult to diagnose. How may we regard the described complexity of nervous disturbances approaching the most severe typhoid symptoms? To recapitulate: the symptoms were anxiety, dread of impending evil, superficial respiration with rapid distending nostrils; depression of the sensorium; impediment of speech (aphasia); the declining of the skin temperature to a minimum, and lastly, deep coma. Is this uræmia? Or is it taking up the pus masses in the kidneys—septicæmia? or both together?

It can be seen that under certain conditions the definition, "uræmia," is rather uncertain,

and therefore the impossibility named above to give for all cases a sufficient theoretical base. If you call the described complexity of symptoms uræmia the case will be a denial of TRAUBE'S theory. At least, the connecting links postulated by TRAUBE are wanting.

There was neither a great amount of flexion of the radial artery, nor hypertrophy of the left ventricle; still the brain substance was considerably moist. To my mind a definite answer could not be given for the case in question—and on the other hand the value of a theory is not shaken as long as the same throws light upon very many cases. The most noticeable thing was the diminution of the temperature of the skin. There was no explainable ground for increased heat. The phenomenon can be explained only by a lessening in the production of heat. Whatever opinion any one may have about the function of the kidney, it cannot be denied that it is the seat of great "oxydation processes," and I do not believe I err when I attribute the lessening of the temperature of the body to the cessation of the function of the kidneys. This explanation may be, according to the present state of our science, more nearly right than the other explanation of an unknown central temperature-regulating organ. We will not enter into a more detailed analysis of the present case, but take up the two symptoms which were the same in both cases, viz.: the disturbances of the senses and the lessening of the powers of speech, conjointly with the severe lesions of the kidneys.

Aphasia has lately been the theme of many medical writers, but, as far as I know, there have been published but two cases which bring *aphasia* directly together with disease of the kidneys (Vid. *Clinical Weekly Reports*, 1869, *No.* 40 *page* 435). Both were children, ill on account of "difluse nephritis," ending in uræmic manifestations. Our two cases, and especially the first, have certainly originality, which may throw some light on the interesting phenomena of *aphasia*.

Their analysis led me to the following conclusions: The knowledge of a pathological state like the impediment of speech, can only be explained if the physiology of the the formation of speech is made perfectly clear. Speech is nothing inborn with man. It must be learned, and its practice rests on experience.

The essential of the human language consists of the fact that the individual learns to give certain things certain articulated sounds. The formation of speech is made up of the following four elements:

1. The preception of sounds.

2. The keeping or fixing in the mind certain forms of sound (sound-memory).

3. The joining together of the form of sounds impressed on the sound-memory, in connection with one or more nerves of sense. This will lead to an idea ("Der 'Legriff' ist das gedachte wort"). The "idea" compels a word to be thought.

4. By alteration or changing of the forms of sounds developed in an "idea" into co-ordinated movements. This will lead from the "idea" to the spoken word.

Observations at the sick bed lead to the conclusion that there is, probably, in a pyschically sick person a change in the brain substance—at least some of the psychically morbid symptoms can be anatomically traced. Now it may be allowable to infer from this observed fact that normal causes in the pyschical working of the brain necessitate the integrity of certain anatomical brain districts.

This observation will lead to a mechanical construction of psychical symptoms, which may be perhaps of more advantage than the present teaching of psychology. Taking this view for the language, it leads to the postulate of an anatomical base for the speech, and pathology has already made some advances toward this postulate.

Without considering the certain "districts." We may say, generally speaking, that the four elements of formation of speech mentioned below, necessitate an anatomical base of four organs, or districts of organs.

(1). The *centrum* for detecting the sounds to which the normal apparatus of the *nervus acousticus* leads and acts during the irperception.

(2). A central part which is able to fix certain received perception of sounds—*i. e.* a centrum for the memory of sounds.

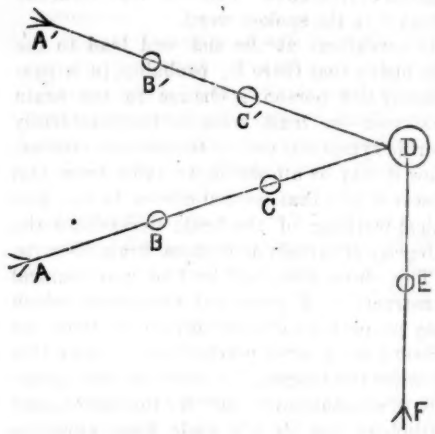
We speak only of the nervus acousticus, because it is the starting point for the formation of speech, but suppose at the same time the nervus opticus and olfactorius, the nerves of taste and touch, possess the same central apparatus.

(3). A chief *centrum*, to which all the "memory centers" of all the nerves of sense send their leaders, have the peculiarity to fashion *ideas* and *forms*, by joining together the single impression of senses.

Certain forms of sounds brought together, with certain optical impressions, bring about the idea of a certain object. This idea of an object can only originate by the presence of the perceptions of at least two senses referring to one and the same object, which perceptions or impressions must take place conjointly and be brought into connection.

(4). The chief center of the formation of ideas must be in connection with a center of "co-ordinate movements."

This will be made clearer by the following drawing:



Let *A* be the termination of the *nervus acousticus*, *B*, the center of "sound perceptions," *C*, the centre of "sound memory," *D*, the center of formation of "ideas," and *E*, the center of "co-ordinate movements;" *A' B' C'* represent the same organs in the orbit of the visional nerves. Supposing the form-sound, "papa," to be repeated from *A* to *B*, and perceived in *B*. The perception of a certain thing is caused by *A'*, in *B'*. The next results might be that in *C* the sound and in *C'* the optical picture are formed, both becoming one in *D* as the idea of the person, "papa." It wants only the starting from *D* to the center of the "co-ordinated movements," to let the child speak the sounds "papa" in relation to a certain person. I shall be excused for my explicit definition, since any one can see how the disturbances of speech witnessed at the sick bed, can be clearly understood.

I will, before I try to explain these disturbances, point to the fact that the supposition that men always think with "ideas"—*i. e.*, unspoken words—is erroneous. This way of thinking is usual—the common one, but not the only. HELMHOLZ has already pointed this out; and I may add that, as we do not always think in words, therefore we are unable, then, to express the thought-part, when in the centre of the "*formation of ideas.*" The joining together of the two impressions of the senses, at the same time, does not take place. Knowing a person, we have fixed his picture in the memory of our optical perceptions; but, if the picture on the "centre of memory" of a second nerve of sense is wanting, we are unable to fix the "idea." If we know the person's voice, we have only a formation of sounds in our "memory of sounds," and a second is wanting again to form with it an "idea."

Looking at the drawing, you perceive that in the matter of *thinking*, only, the centers *C* and *C'*, are brought into work. The continuity with *D* is suspended.

This is, I may say, an *aphasia*, yet belonging to physiology, and I do not believe it an error to assume that animals get only to this point in thinking.

We gain hereby the bridge to the pathological disturbances of speech. They constitute two main groups, the interruption being either from *A* to *D* or *D* to *E*, originating through centripetal or centrifugal disturbances.

We will separate from the two groups immediately, those disturbances of speech which arise through the interruption of the nervus acousticus, or through the interruption of the center of "co-ordinated movements" at the end of the *muscle nerves*.

This prevailing in the child, leads to the condition of *deaf mute*. A child remains mute when it does not have the faculty of the perception of sound; but, if the visional and touch organs in such a child remain perfectly normal, deafness does not prevent the child from learning to write. It can form "ideas" so long as the center *D* is normal. The impediments of speech on the other hand, arising through the interruption from *E* to *F*, show themselves in *paresis* of the muscles,

and they do not belong to the regular domain of *aphasia*.

The aphasia encircles the centers *B*, *C*, *D*, and *E*; and either the one or the other, or their links, being interrupted, their symptoms will be different.

Suppose *C* is destroyed by a severer pathological process, the patient is like a deaf mute child, with the only exception that he has the perception of sound wanting in the child. The effect, however, is the same for both, viz.: the patient cannot speak because he has lost all memory for sounds. He can see, for instance, a tree; he is able to draw it; can write the word "tree" as long as the sense of vision and sense of touch are in complete connection with *D*; but he can never pronounce the word "tree."

The more severe the lesions of the centre *C* are, the more will the form of sounds be deficient. There will be a loss in richness of words with the patient. If the lesion of *C* is only slight, it may happen, that the patient has his "sound-memory" only for some sounds, and perhaps loses only certain vowels or consonants. He speak words, omitting the single vowels or consonants.

It has been held for this form of *aphasia*, that the patient is lacking in knowledge of the missing sounds of form. The patient does not know that he cannot speak certain words or that he leaves out certain sounds. Here lies the difference in the disturbances which originate through lesions of the center *E*. Forms of aphasia characterized by interruption from (*E*) centrifugal, are the following: The "ideas" are not wanting; the memory of sounds is normal. The sounds are perfectly in the mind with those, and in speech, but the faculty is lacking to express the clear thought. The patients know perfectly well that they speak badly, and through knowing it, in connection with the feeling of inability to remedy the defect, they are fretful, unhappy, etc.

It is through the exact knowing by the patient himself, of the disturbances of speech, that centrifugal forms of aphasia are distinguished from the centripetal.

The form of *aphasia* arising through lesions of the "idea" center *D*, is the last we have to deal with. It is the really severe and often occurring form. Here the faculty of thinking and speech are diseased. The "ideas" are wanting, therefore the patients can neither write nor speak.

Let us now return to our two cases. The impediments of speech in the first patient were, during the different stages of his disease, quite different. Words are wanting with which to describe certain things. Afterward he lost nearly all words, only remembering "yes," and answering everything with it, but being at the time not quite free in the sensorium. This state cannot properly be reckoned among clear disturbances of speech. Another time words were wanting him, and he was cognizant of it. Later he used for certain objects wrong expressions.

It is evident that it was a case of *aphasia*, where all the centers suffered, but especially the "center of co-ordinate movement" was impaired. Patient was aware that he talked wrong, but could not alter it. The disturbance, therefore, was mostly centrifugal.

In the second case, we have to deal with a lesion of the "idea center." Patient was unable to speak, without knowing in the least himself that it was so. His intellect becoming entirely lost, a minute analysis was not possible.

Great pathological-anatomical changes lead, probably, to an affection of all the centers of speech, and this is the reason why the anatomical section is so different with patients afflicted with *aphasia*.

There is no real single center of speech, but, on the contrary, for speech several centers are necessary, of whose anatomical position we have, as yet, no definite knowledge. We may presume at one time one center is affected, and, at other times, another center. The consequence will be a disturbance of speech, and yet pathological processes may have attacked, in different cases, different portions of the brain.

WHAT I KNOW OF SCARLET FEVER.

By F. K. Bailey, M. D.,

Of Knoxville, Tenn.

To speak of what one knows, sometimes savors of conceit. In our courts of justice, the testimony of a witness is not received as evidence unless the statement is the result of actual personal observation. There is much of theory upon pathological subjects which is received as authority by the profession, and acted upon accordingly.

Fortunately, perhaps, the writer has had but limited opportunities of observation in the disease upon which it is proposed to make a few observations, and to present as well as possible from memory, a few facts. I say from *memory*, because no notes were taken at the time. In this connection I may be allowed the remark that young men just entering upon practice should keep notes more or less in detail of all important cases, especially in the prevalence of an epidemic. It may at the time appear unimportant, but as years roll on and successive epidemics prevail, it will be satisfactory to compare these records, and therefrom form useful and interesting conclusions. That I did not inaugurate such a practice at first and persevere in it, is now a matter of deep regret.

Scarlet fever is a disease which for centuries (three at least) has engaged the earnest attention of nosologists. Until about three hundred years ago, it was confounded with measles, and, according to DUNGLISON, it was first distinguished from that affection by SUGRASSIAS. The first monograph on the subject is said to have been written in 1778, by a physician of Poitiers, named JEAN COYTLAR. During my childhood, the disease prevailed in Vermont, and many a favorite schoolmate sunk to the grave from its effects. It was then known in common parlance as "canker rash."

Naturally enough, on commencing the practice of medicine, there was a dread of meeting with such a disease. The first occurrence of its prevalence was in the winters of 1840 and 1841, in a recently settled region of country about forty-five miles due north from Detroit. The first settlements in the section were made in 1835 and 1836. Up to the period alluded to, scarlet fever had never been seen. The subjects were mostly children less than five years of age. The first symptoms, were a burning fever, great heat of surface, inflammation of the fauces, enlargement of the tonsils, followed in many cases with laryngeal and bronchial congestion, terminating rapidly in death in the graver cases. On the second or third day, the skin assumed a dark livid hue, rather than scarlet, and in some mild cases, no eruption at all was to be seen. It was then considered as what some writers denominate "*scarlatina sine eruptione*," and from subsequent observation, I have found no reason for changing that opinion.

The winter had been extremely cold, and the spring wet and late. Intermittents and other fevers had been pravalent for two years. In fact it was an unhealthy locality. The disease in a majority of cases was so rapid in its progress, and the anginose attendants so severe, that fatality was the rule, rather than the exception. Of my success in treating this epidemic I have nothing flattering to report. In fact no treatment was attended with any marked effects. Age and youth in the profession, both alike, failed of success. A child might appear to be doing well at night, and before morning become asphyxiated. The symptoms at first were acute in character, but from obstruction to the breathing, caused by swelling of the throat, the blood became unfit to sustain life, and the patient sank before remedies either general or local, could have any effect.

This form of disease is described by AITKIN as anginose scarlet fever, where the morbid appearances are concentrated, so to speak, in the throat. The eruption is an unimportant feature, or at least not a *sine qua non*. It occurs later than in the simple form, or not at all.

Under the head of "Malignant Scarlet Fever," Dr. AITKIN says, "in this variety the throat tends to slough, the scarlet rash is scarcely if at all visible, petechiæ are often seen on the surface, and the fever is of a low form."

Dr. WOOD, in his work on Practice, under "EPIDEMIC ERYSIPELAS OF 1842, 1843, etc., Black Tongue," alludes to the occurrence of a disease which prevailed in those years in several of the New England States, in those of the West and North-west, and in the interior of Pennsylvania. About the same time I think a disease called black tongue prevailed to some extent in some of the towns near Detroit, or in one or two counties lying north of that city. Whether it was properly an affection erysipelatous in its character, or more nearly allied to scarlatina, I am unable to say. The counties of Oakland and Macomb on the north and north-west, and one or two lying directly west, were settled from ten to twenty years earlier than those in which the writer practiced, and the type of disease even if of the same general class, will be modified by causes growing out of local influences, age of settlement, kind of soil, timber, etc., etc.

In the spring of 1844, true scarlatina made its appearance in the same locality, and prevailed extensively over quite a range. The disease at this time was very malignant in many cases, and proved fatal to a fearful extent. The characteristic eruption was fully developed, and the anginose attendants very marked. All ages, from infancy to that of puberty, were victims, and, in some instances, the parents, and other adult attendants upon the sick, were affected especially in the throat. The type was decidedly adynamic, the malignancy depending upon the severity of the throat affection. Some of the very worst and most fatal cases were in girls and boys from twelve to fifteen years of age. The gravity of particular cases depended, however, upon the treatment adopted; but to this, reference will be made farther on. The next visitation of the disease which I encountered was in 1858 and '59, at Joliet, Illinois. In November, or December, it commenced, and continued till May or June. The eruption was full and timely, but, although severe, the pharyngeal symptoms were not generally such as to cause a fatal result. The worst features consisted in cerebral complications, amounting, in some instances, to well marked phrenitis.

In two or three days from the first accession of the disease, many children sunk into a violent delirium and died in convulsions. This state of things obtained before the fauces became affected to any extent, but where the brain was intact, the air passages suffered greatly, the disease affecting the nasal organs, and in one instance of a girl of 4 or 5, the ears became so diseased that the hearing was permanently affected. A constant otorrhea still remained as late as 1867, and probably continues to the present time. Since the time last mentioned, I have not met with a severe case of scarlatina. About a year ago, a few cases of a mild type occurred in this city. The characteristic eruption was fully developed in most cases, but in some it was difficult to distinguish them from roseola, until desquamation took place. There was no severe anginose trouble, and every case recovered.

It will be seen that at the various periods enumerated above, the disease assumed different phases. Those periods embraced a term of thirty years, and localities in three different States of the Union.

The idea of writing upon this subject, was suggested from reading in the columns of the REPORTER during the last year or two, various articles upon scarlatina, which embraced almost every conceivable phase of the subject in its history, etiology and treatment.

The discussion has called out divers expressions opinion, which showed each one to have occupied a different standpoint. It is not proposed at this time to discuss any particular mode of treatment, but to make some observations of a practical nature, suggested by personal experience and well-known general principles in therapeutics. As remarked before, in the treatment of that epidemic occuring in 1841, nothing can be said except that it was attempted to meet and obviate morbid appearances as they occurred in each case. In 1844 the disease, although severe, was more easily controlled. Upon the outset of the attack I found the best results from an emetic of ipecac. with small quantities of tartar emetic in the older children. If a good effect could be produced at once, the eruption came out more fully, the skin subsequently was less hot and dry, and the throat symptoms not so severe. Occasionally the emetic was followed by small doses of calomel, if the tongue and other symptoms indicated any hepatic derangement. When given it was as a *cathartic* and in one single dose, followed by castor oil, so that any constitutional effects might be avoided. After the trial of calomel in a few early cases of my own, and seeing the effects of the drug in the hands of other physicians, I discontinued its use entirely. I ascertained that some made free use of calomel as a cathartic and in divided doses, and their patients almost invariably died from the severity of the anginose attendants. Congestion and sloughing of the tonsils were sure to follow the continued exhibition of the mercurial. The bowels were kept open by moderate doses of castor oil, and at stated intervals as indicated, opium was freely given, with powdered sanguinaria canadensis and sup. carbonate soda.

Being in a malarial region, sul. quinine was given according to individual indications. Demulcent, or stimulating, and astringent gargles were used in the mouth and throat, and nourishing food allowed freely. Externally no application was more generally used, or with better effects, than oil turpentine rubbed on with a bit of flannel. No envel-

ope was applied at all, and the neck and throat left exposed. In many instances I saw under direction of other physicians, or domestic treatment, large pieces of fat pork bound on with thick cloths, which I was satisfied produced bad effects. The antiphlogistic treatment was invariably bad in its results. It was only in the very first hours of the attack that I felt justified in employing emetics, or the calomel, and then only to clear the stomach and alimentary canal of effete matter that might subsequently be a source of irritation. The stimulating and supporting plan of treatment after the disease became established, was the only justifiable course to be followed.

It was considered very important to treat the disease so as that the pharyngeal condition should not cause death by asphyxia. I will state that in the same vicinity there was an irregular practitioner, who was a hybrid between the old time Thomsonian, and the later so-called Eclectics. This man was quite successful in his management of the disease, which is in confirmation of the wisdom of a stimulating course. His hot drops, No. 6, and other heating remedies, were more rational than the reducing agents employed by those who acted upon the idea that disease is a fire to be extinguished.

There are various opinions in regard to the causes of scarlet fever. There are the humoralists and the solidists, who, each in their turn, have been popular at different periods. All agree, however, that whatever may constitute the essence of the morbid condition, the nervous centers are more or less seriously involved. This is shown by the elevation of temperature, and acceleration of the circulation. Unlike small-pox, the febrile disturbance is not lessened on the appearance of the characteristic eruption upon the skin.

It is scarcely necessary, in this connection, to consume time in discussing other points of interest connected with scarlet fever, and it will suffice to be able to gather some practical ideas and facts. In regard to treatment, it is impossible to present any definite plan which will be applicable to all seasons and localities, to every degree of latitude and longitude. In so small an extent of territory, comparatively speaking, as that embraced in the British Isles, some uniform course may, perhaps, be adopted, which the local practitioners can safely follow. But, in the United States and the Territories, there is such a diversity of climate, as it regards heat and cold, moisture and dryness, elevation above the level of the sea, conformation of the surface of the land, etc., etc. that each section must be considered separate and apart from every other, while discussing the causes and modes of treating any disease.

It must be very apparent that scarlet fever may be treated, along the Atlantic coast, in Massachusetts and Maine, in a very different manner from what is admissible in the Valley of the Mississippi, or along the Gulf of Mexico. In a malarial region, in the northern parts of Wisconsin and Michigan, disease will manifest itself far differently from what it will in the elevated districts of North Georgia, East Tennessee, or Western Virginia and North Carolina.

These observations only serve to impress upon the mind of a practitioner the importance of studying faithfully and carefully, not only in each season and locality, but each and every patient at the bedside, the characteristic indications as shown by morbid appearances. If this is done, there will be no necessity for discussion among physicians in different localities, as to the merits or demerits of any one plan of treatment, or any single remedial agent. The main question to be decided is, "What can best be done for this particular patient now lying sick before us. What particular manifestations characterize this case, of a child forsooth, as different from another child one mile distant, of a different temperament, parentage and sex?" Or again, in the same family a distinct plan will often be called for, by reason of age, sex and vital force being dissimilar.

There is a principle generally acknowledged, known as epidemic influence or prevailing diathesis, which must be appreciated and taken into account in the treatment of scarlatina, as well as many other diseases. This epidemic influence so called, is a result of causes which operate upon whole districts of country alike at certain seasons of the year. For instance, influenza may become general at a certain season, and exert a controlling influence upon every local manifestation of disease. If then, while influenza is prevalent, scarlet fever, which is a specific affection, is incidentally introduced, the disease may assume an anginose type of a

graver form than it would assume were some other general influence prevalent. Again, if scarlet fever is introduced in a locality where the epidemic influence is tending to congestion of the brain, then the specific disease will manifest itself in the cerebral organs, and produce fatal results before the pharyngeal organs will have time to be affected.

It is then the duty of the physician not only to study the personal characteristics of his patients, but also, the general atmospheric influences that tend to modify each and every epidemic, which he is called upon to combat.

The subject of epidemic influence is a theme upon which a mere mention may be made at this time, but is one that should be carefully studied. If due importance is attached to the subject, ample room for reflection is opened to the mind.

To return to the form of disease alluded to at the commencement of this article, as occurring under my notice in 1841 and '42. The winter was intensely cold, and followed a season in which malarious diseases had been very prevalent. Miasmatic influence, succeeded by the depressing effects of a low temperature, induced an adynamic condition of the system as indicated by petechial skin, and ulcerative sore throat. The subjects being principally children under three years of age, they sank rapidly, partly from the difficulty of treating the throat topically, but particularly by reason of the shock from such a low diathesis. The epidemic of 1844 alluded to, was characterized, as before stated, by a low typhoid condition of the system. The general epidemic influence had continued since 1842, and with an increasing intensity. Malarious diseases in their simple form had gradually given way to typhoid conditions, and thus with advancing time the system was less able to withstand a superadded visitation of so severe a disease as scarlatina.

At the time alluded to in 1858, there was an epidemic of scarlatina which appeared to take on a malignant type generally. The prevailing epidemic influence in the region during the previous autumn was that of a typhoid character and the way was open for the specific disease to make its worst ravages. In the spring of 1871, there was no epidemic of any kind prevailing. Scarlatina by some means was introduced, and being of a mild type, soon exhausted itself.

A few remarks regarding the propagation of scarlet fever. The earliest source of the poison is distinctly traceable to Arabia. (AITKIN). It prevails at all seasons of the year, but is most apt to commence its ravages in early winter. But few communities are free from it for any considerable length of time. Principally confined to the period of infancy, but generally more severe as the child advances in years. If delayed till the age of puberty, it is very apt to prove fatal. In adults, it is mostly confined in its manifestations to the throat and air passages.

The question of contagiousness is variously entertained, but I am sustained by perhaps a great majority of observers, in the certainty of its being communicable. When introduced in a family or school, it is found to spread. In 1844 an infant four weeks old had scarlet fever in a mild form. The little daughter of a family residing four miles distant called with her mother, "to see the baby." In ten or twelve days she was taken, and became very sick indeed. The symptoms, both local and constitutional, were very strongly marked. All the rest of the children (four or five) were taken after the same lapse of ten days. From this family, the whole neighborhood became infected, and the severest cases occurred in that vicinity. While very certain, that scarlatina is communicable, still its occurrence is not dependent upon contagion or infection. In one instance, in 1844, and that in my own family, a child two and a half years old, was taken down with the disease, while there was not another case within four miles. At that time, I was not attending upon patients sick with scarlet fever, and had merely passed by houses where it was prevalent.

There is quite a distinction to be made between contagion and communicability. Smallpox represents the former and scarlatina the latter.

In confirmation of its being susceptible of transmission from one to another, I will cite the following facts: Last spring I was called to attend a couple of little girls (mulattoes) belonging to a family of servants employed at a boarding house in this city.

They both had high fever, and, very soon, soreness of the throat, with enlarged tonsils. In ten days, or thereabouts, a little daughter of one of the families boarding in the house, and about three years of age, was taken ill,

and, in due time, was broken out fully with the characteristic rash of scarlatina. The throat was not very much affected, but desquamation, subsequently, was very decidedly marked. From this child, another little girl of seven, and living at the same house, took the disease, which was very well developed as to rash and the anginose attendants. For two or three days there was some slight cerebral disturbance, with insomnolency. Again, from the little girl of three, two other children, who were incidentally exposed, were taken ill after the same length of time, and one of them was very ill for some days. The other was less severely affected, but the case was undoubtedly genuine. Three or four adults, who were in charge of these children, were also ill about the same time with very sore throat and considerable febrile disturbance, but no eruption.

It was not the original design, in the preparation of this article, to discuss the essential or specific conditions of the human system which constitute scarlatina, but there are some interesting questions suggested in the examination of the subject, which I beg leave to add. The fact that the severity and fatality of the disease is generally dependent upon the extent of the anginose attendants is a prominent one. With few exceptions, no case proves fatal where the throat is not severely affected.

One of the exceptions is found in those cases where the brain is affected at an early stage. Death occurs from cerebral disease before the throat symptoms have time to develop, but the pharynx even then will be found much inflamed, and the tonsils more or less enlarged and congested. The throat appears to be an important locality in which the morbid influence is manifested.

The changed fluid poured out so freely from the mucous membrane, are constantly being swallowed, and the effluvia carried to the lungs. Thus through two important channels the system is constantly receiving an addition to the original poison. So much importance attached to this fact, that nosologists enumerate one variety of scarlet fever as anginose.

AITKIN says, "that in this form of the disease, the specific action of the poison is mainly limited to one region—that of the throat—the eruption on the skin being altogether wanting, or appearing at a later period than usual," etc.

It is under this variety that the same author alludes to the *scarlatina sine eruptione*, and which found an analogue in the cases described above as occurring in 1841.

There are some interesting facts connected with disease of the throat, from whatever cause produced. In the usual phenomena connected with a common cold, the throat becomes affected. Sore throat is one of the commonest minor affections to which we are subject. During my whole life I have found that getting the feet wet would almost instantly be followed with a soreness in the fauces. There are many interesting physiological and pathological questions involved in regard to the function of the glosso-pharyngeal nerve.

CARPENTER says, "that it scarcely sends any of its branches to the muscles, which they enter; but that these mostly pass through them, to be distributed to the subjacent mucous surface of the tongue and fauces." Such a distribution leads the eminent physiologist to suppose its function to be the conveyance of impressions from the surface of the fauces to the medulla oblongata. Every physician must have noticed that extensive disease of the mucous lining of the throat is often seen without a corresponding degree of soreness felt on swallowing. We all are surprised on examining the throat to find even ulcerations of the mucous coat, and the individual complains little or none of pain in or difficulty of deglutition.

It is only when the cellular and muscular tissues are involved that much complaint is made. It has always been noticed, both in personal observation as well as reading the writings of the late HORACE GREEN, M. D., and others, upon disease of the air-passages, that the local manifestations were confined to the mucous tissue, and that pain in swallowing was but a minor fact in the case. Even in ulceration in the laryngeal mucous membrane, as described by Dr. GREEN, cough was not a prominent attendant. There was inability to speak, with general debility following an effort in the pulpit. In connection with these facts, I have been led to suggest as an explanation of this, that the disease is more properly a constitutional affection than local, and that the general condition finds local expression in the fauces and larynx,

through an influence conveyed from the nervous centers via the glosso-pharyngeal and pneumogastric nerves.

Again, we find that clergymen affected as above complain, after a day's labor, not merely of severe local irritation, but of languor and lassitude, with depression of spirits, feebleness of voice, etc.

This view is further maintained by the fact that the most successful treatment of such affections consists in the administration of tonics and tonic alteratives, with rest and change of scene.

The prominent remedies employed by Dr. GREEN were such as have an influence upon the general organism, and the effect of nitrate of silver, applied topically to diseased mucous membrane, is not wholly local, but it produces remote effects upon the nerves concerned in the office of secretion. In explanation of the reason that clergymen suffer more from the affection above alluded to, I would suggest that, in addition to the physical exertion requisite to carry them through with their usual duties, that the emotional feelings are excited in them to a degree which is almost unknown in any other profession. Every one is aware of the effect of grief, and other emotions, upon the throat. "To be choked with grief," is not a mere fancy expression. The globus hystericus is also located in the region of the throat, and its explanation may be suggested upon similar principles.

We may, with certainty, conclude that there is great importance to be attached to the state of the mucous lining of the fauces, as an index of the general condition.

Whether the peculiar poison of scarlatina acts primarily upon the throat, and, through the glosso-pharyngeal nerve, upon the general organism, or in a reverse order, first upon the nervous centers, and, secondarily, upon the faucial mucous membrane, through the same nerve, may be a question for scientific men to decide.

That a severe shock is sustained by the nervous system is certain, and, with either being correct, or neither, it is interesting to watch the progress of the disease.

Many of the most complex diseases we are called upon to treat, are referable to reflex action between mucous surfaces and the brain.

While writing the closing sentences of this article, I received the November number of the *Nashville Journal of Medicine and Surgery*, in which is a communication from WILLIAM M. SEARCY, M. D., of Davidson county, Tenn., upon the "Prevention of Scarlatina." The writer takes the position that scarlatina commences first in the tonsils, and that the throat will be found inflamed before constitutional symptoms set in. He considers it very important to treat the local affection promptly. Cases are cited, and he maintains that he has been able to cut short the disease by the timely application of nitrate of silver ʒj. to the f.ʒj. of rain water.

Scarlet fever occurs mainly in children too young to admit of examining or treating the throat, but in older children the suggestion may properly be carried out.

If the disease in question is strictly constitutional, it may be questioned whether mere topical medication will have decided abortive effects, although eminently proper as an auxiliary to measures more general.

A CASE OF RUPTURED URETHRA.

By WM. FAULKNER, M. D.
Of Waterford, Pa.

On the 16th of December, 1857, I was called to see a farmer, æt. 37, who had been struck by a falling tree on the left hip, so as to fracture the ischium in its body and ramus, the right hip resting at the time upon some solid body.

He complained most bitterly upon the least motion; said he felt as if all crushed to pieces in his hips and back. Some hours after I had reached him, he expressed a desire to urinate, and upon passing a catheter down to the membranous urethra, some unaccountable difficulty was met with, and after careful and repeated trials, I failed to pass the instrument. A more experienced physician was called in, who after a protracted and thorough trial without success, finally succeeded by using force.

The patient suffered intense pain at the time, but the relief to the over-distended bladder seemed to justify the means. It was the intention to keep the instrument in the bladder during the night, but it caused so much irritation that the patient removed it before I reached him the next morning. I found no

difficulty upon this occasion in replacing it, and it was retained that day and a part of the night.

On the 18th I again failed to pass the catheter. Counsel was again called, and very thorough efforts were made to reach the bladder without success. When the bladder became distended small quantities of urine would pass the instrument, when it was carried down to the seat of obstruction. This kept the distension within endurable limits, and he remained in this state until the morning of the 21st, when the urine burst its way through a rupture in the raphe of the perineum, about one inch in length, and three-fourths of an inch from the anus. This discovery threw no light upon the case, and explained the cause and character of the obstruction in the urethra. The blow had without doubt caused a breach of the parts from the membranous urethra through the perineum. The size of the opening justified the opinion that it would afford a passage way for the urine for some days to come, relieving temporarily the critical condition of my patient.

It was not to be overlooked, however, that trouble was in store for him, granulations would, after a time, close up this rupture, and some other provision, looking to the re-establishment of the urethra, must be considered. I looked upon the case as offering but one plan of radical relief, to wit: cutting down to the point of obstruction, pass the instrument into the bladder, and keep it there long enough to gain the object in view. From this time the urine escaped freely, though the perineal rupture, and the patient, slowly improved in strength up to the 16th of January, 1858—one month from date of injury—when assisted by Dr. RAY, of Meadville, Pa., I placed my patient in position and secured him as for lithotomy, chloroformed him, passed a catheter down to the point of obstruction and made my incision as in the lateral operation for stone. I found the point of the instrument obstructed by a perfect closure of the urethra, about one or two lines beyond the bulb, which was thickened and indurated, making it difficult to reach the point of the catheter without wounding the bulb. Before freeing the point of the catheter, I took a probe and explored for the prostatic extremity of the passage, and after some careful dissection and search the instrument entered the orifice in the gland.

To all appearance, the membranous urethra had been completely destroyed. Resting the probe in position, I opened into the point of the catheter, but upon passing it forward, and at the same time holding it up close to the arch, it struck far too low to enter the passage.

I then exchanged the probe for a strong grooved director, and after passing it well into the bladder, I used it as a means or force for changing the direction of the urethra until I was enabled to pass the catheter along this instrument into the bladder, and the patient was soon in bed. The importance of keeping the catheter in the bladder was fully appreciated, and a competent man placed in charge, and morphia given to the extent of creating a tolerance.

In forty-eight hours, the instrument was replaced by a clean one. The wound granulated rapidly, and his condition became, from day to day, more comfortable. A change of instruments was made every twenty-four hours, and, after the first ten days, the catheter was left out a few hours every night. From this time the patient had but little pain, was hopeful and cheerful, and gained in strength, and could soon remove and replace the catheter at his pleasure, and about the first of March he was dismissed, with directions to use the instrument daily for at least a year, to guard against contraction. He recovered with a very good urethra, and is still living, in the enjoyment of good health.

A CASE OF EXTENSIVE ENCEPHALOID DISEASE OF THE KIDNEYS.

By, J. C. WILSON, M. D.,
Of Edinboro, Pa.

On the seventeenth day of last April, I was consulted at my office by Mr. Joseph Kearney for his nephew, John K., a little boy aged two years and six months, who, he said, "was making bloody water, and also had a *lump* in his side about as large as a turkey's egg." Suspecting from this meagre description of the case that it was of a grave character, I requested him to bring the patient to my office that I might give him a more thorough and satisfactory examination; which he did about four o five days afterward.

My patient, a noble looking little fellow,

was of nervo-sanguine temperament, ruddy countenance, embonpoint healthy even to a slight degree of obesity, was yet voiding some blood with his urine, which also threw down a large epithelial deposit. Blood in his urine first drew attention to his case about a fortnight previous to this time. There was no apparent interference with any other organic function, and the patient evinced no sign of pain, except during the act of micturition. Upon exposing his abdomen, a very prominent enlargement occupied the inferior portion of the right hypochondriac region, and, what a few days before was no larger than a turkey's egg, had now assumed the dimensions of a pint bowl. The tumor was, in some degree, movable, soft and elastic upon its superior perimeter, but more solid below—nowhere presenting the least appearance of fluctuation. There was no tenderness upon pressure, and the little fellow evinced no signs of uneasiness under the most free and protracted manipulations.

The entire aspect of the case seemed to preclude any idea of malignity in the growth, and yet I was at a loss to account for non-malignant tumor undergoing such a rapid development. I confessed myself unable to make any satisfactory diagnosis in the case, and after giving an unfavorable prognosis, assuring them that the size, together with the rapid enlargement the growth was undergoing, would in all probability render it utterly futile to depend upon any course of treatment, either constitutional, local or surgical, for its removal, I cited to them the opinion of other physicians. The obscurity of its character and origin made it at once a case of extreme interest, and I was very desirous to have as many of my professional brethren examine it as possible.

About this time the father, Mr. John Kearney, Sr., who had been absent, came home, and he first took the case to my friend, Dr. M. L. FAULKNER, of Venangoboro, who also acknowledged his inability to give any satisfactory explanation of the phenomenon; the growth in the meantime increasing rapidly in size. He next consulted Doctor (?) ROBERTSON, of Cambridge, who told him he had seen and treated a number of such cases, and giving encouragement of its final cure, at once arrested the case. He diagnosed it as an *osteosarcoma*, situated between the peritoneum and the walls of the abdomen, in the form of a turtle-shell, with its convexity projecting anteriorly!! This opinion he gave in my presence and in my office, on returning from a professional visit to the case.

The first step toward constitutional decline, commenced with dyspepsia, causing an aggravation of the hæmaturia—large clots of blood blocking up the urethra, creating intense pain in his prolonged efforts to expel them. Morphia was prescribed to meet the wreck induced by this, and the learned disciple of Esculapius retiring from the field, the case was left to resume its wonted course. The appetite returned, the bowels regained their regularity, the hæmaturia subsided (and strange to say did not return), the child again became cheerful and playful—nothing but the presence of a rapidly growing tumor indicated the least departure from a healthy standard for several weeks.

I managed to keep a pretty close surveillance of the case, but the father, a very sensible and well-informed man by the way, becoming convinced of the utter hopelessness of his child's recovery, neither courted nor permitted any further treatment, and nature, if she could not be assisted, was at least left untrammeled in the unequal combat.

About the first of July, the growth not only greatly distended the entire hypochondriac and iliac regions of the right side, but had crossed the median line, and was rapidly occupying corresponding regions of the left side, and the whole abdomen finally became enormously distended, obliterating the umbilicus entirely, and rising up high against the liver and diaphragm, greatly impeding respiration.

Previous to the first of August, there was no very marked degree of emaciation, and the child continued to walk about, but his gait was becoming very unsteady, and it required a good deal of effort to maintain a proper equipoise. Subsequent to this time, however, constitutional derangement became very apparent; emaciation progressed rapidly, pulse became accelerated, appetite irregular, countenance assumed a sunken expression, moaned in his sleep, and everything seemed to indicate a speedy dissolution—no one supposing he could live until September. About the first of the last named month, a well-defined oval projection, from the main tumor, made its appearance just to the left of the epigas-

trium, which presented evident signs of fluctuation, and having, apparently, a separate existence, as it were, or, tumor upon a tumor, and maintained this appearance up to the period of dissolution.

Nothing worthy of note transpired in the case during the last two months of the patient's life, except a gradual enlargement of the growth, and for six weeks previous to death a total inability to maintain the erect posture, and when in a sitting posture the tumor projected beyond the patient's knees.

I saw the little sufferer the last time about ten days previous to death, when the skin of the entire abdomen presented a shining cadaveric appearance and tense almost to bursting. The false ribs projected from the chest at almost a right angle, and the difficult respiration was truly painful to witness, although excretion from the bowels and bladder was performed with unabated regularity. The pulse was frequent, weak and thready—the heart was felt beating high up under the superior portion of the sternum.

Death came to his relief on the second day of November, about seven months subsequent to the first appearance of the disease. The father very kindly acceded to my request for an autopsy, which was held upon the following day. Physicians present, Drs. GREENFIELD, HOTCHKISS, M. L. FAULKNER, and your reporter. Dr. FAULKNER conducted the examination, myself assisting. A crucial incision laid bare the enormous tumor enveloped in its fibrous case, with nearly the entire intestinal canal, below the stomach, lying upon its anterior aspect, and firmly adherent to it. It was also marked with a deep sulcus extending horizontally across and to about one-third its depth, apparently dividing it into two unequal parts, one-third lying superior to this dividing line. In our endeavors to separate a portion of the omentum which dipped down into this sulcus, the sac, which proved to be very much attenuated, ruptured, and a large quantity of dark grumous blood—composing the apparent addendum before alluded to—together with a considerable mass of brain-like substance, made its escape through the opening, giving us the first intimation of the real character of the tumor. Our hopes of removing the growth entire had now to be abandoned, and after ligating and cutting the œsophagus and rectum, we removed the whole mass, with the viscera attached, into a washtub, the more fluid and softer portions of the tumor constantly escaping through the rent in the sac.

We were now at liberty to make a free inspection of both tumor and viscera with the following result: The stomach, bowels, spleen and liver presented no departure from a physiological appearance worthy of note. The left kidney was hypertrophied to about double its normal size, but apparently healthy in structure. Nothing remained of the right kidney but a soft pulpy mass, which broke down at once under the most careful handling, having also a direct continuity with the body of the pathological growth. The bladder was empty, contracted, and its coats very much thickened. We now tried to keep as much of the more solid contents in the sac as possible unbroken, which we found to weigh 10½ pounds. An equal quantity of the tumor had undoubtedly escaped, so we could safely compute the weight of the whole tumor at twenty pounds.

Fatty deposits varying in size, from that of a pea to a pigeon's egg were interspersed throughout the mass, and a section of the more solid portions resembled very closely indeed that of a well developed encephalon; reminding us at once how appropriate the name of this variety of carcinomatous affection. After examining the abdominal contents to our satisfaction, we opened the diaphragm and were not a little amazed to find appended to the lower lobe of the left lung—by a distinctly formed neck—a fungoid tumor of perhaps three ounces in weight, the sac of which also ruptured in handling, and the contents bore a striking similarity to those of the main tumor. No other pathological condition of the thoracic viscera was discernible except malposition—the entire bodies of both lungs occupying a space that was the normal receptacle of the superior lobes alone. The heart, as indicated previous to death, was forced high up beneath the upper end of the sternum.

The remarkable points in connection with this case are,

1. The total absence, as we might say, of any constitutional symptoms during life of a carcinomatous affection, as the whole train of symptoms, excepting that of hæmaturia, could have been legitimately referred to disturbances caused by mechanical pressure alone.

[I would parenthetically state in this connection, that about the time the tumor had attained two-thirds its maximum size, my highly esteemed friend and old preceptor, Dr. WM. FAULKNER, of Waterford, had an opportunity of examining the case, and gave it as an opinion that the growth was non-malignant.]

2. The wonderful conservative powers of nature in prolonging life under such a tremendous deposit of carcinomatous tissue.

3. The attack upon the left lung, the dia-

phragm remaining entire, while none of the more directly contiguous abdominal viscera were affected, except the initial organ—the right kidney.

I find but little reference made by authors to encephaloid disease of this organ. Dr. GROSS being the only one I have in mind at present, who, in his admirable work on surgery, says it is peculiar to childhood and often attains an enormous size.

I would say, in closing, the mother of this child died of puerperal fever. I have been informed by the father that he lost another child a few years ago with some chronic abdominal affection, which the physicians who saw him termed induration of the mesenteric glands. There is no hereditary constitutional taint in the family that I am aware of.

MEDICAL SOCIETIES.

CINCINNATI ACADEMY OF MEDICINE.

November 20, 1871.

C. G. COMEGYS, M. D., President.
J. W. HADLOCK, M. D., Secretary.

[REPORTED BY DANIEL VAUGHAN, A. M., M. D.]

Report from the Section on Chemistry.

Chemical Nature of Malaria.

Although some doubts may exist in regard to the endemic character of many diseases, the connection of one class with certain localities seems to have been well established by all modern observation and experience. It is well known that the destructive inroads of intermittent fever are chiefly confined to those districts where the land is always impregnated with a superfluity of water, and rendered capable of filling the surrounding air with aqueous vapor. The resulting evils assume a more deleterious character in the marshes of warm climates, and their great severity is manifested when the fall of rain increases the amount of moisture in the land and in the air. As these moist localities are almost invariably the seats of a luxuriant vegetation, it has been generally supposed that their unhealthy condition arises from the decay of vegetable matter, which is produced so abundantly during summer. Carbonic acid, carbureted hydrogen and other gases, resulting from decay and putrefaction have been frequently regarded as identical with the poisonous principle of marsh exhalations. Yet this opinion is rejected by more careful observers, as it is known that where these gaseous bodies are evolved in the greatest abundance their influence on the human frame, though often very injurious to the health, is not capable of developing any symptoms or affectins nalogous to those of intermittent fever.

But the more recent improvements in chemical analyses have served to show that the atmosphere has a more diversified composition than was first assigned to it by LAVOISSIER and his contemporaries. About thirty years ago SAUSSURE found that when air from which the carbonic acid was removed was detonated with hydrogen a small portion of carbonic acid was produced, thus evidently indicating that there must be carbon in some other form in the atmosphere. It was subsequently found by BOUSSINGAULT that when perfectly dry air is passed over red-hot oxide of copper a small amount of water is always generated. From these two experiments it was first inferred that carbon exists in the air, not only as carbonic acid, but also in the form of carbureted hydrogen. But this conclusion was not warranted by the experiments, as the result attending them would be caused by the presence of most kinds of organic matter. The existence of such matter in the air was subsequently rendered evident by the change which nitrate of silver sustains from long exposure. But a more satisfactory means of settling the question has been recently afforded by the use of permanganate of potash, and Dr. ANGUS SMITH, of England, employing this reagent for the estimation of aerial organic matter, has found among other important results, that the greatest quantity is contained over stagnant pools of water.

Though it may be impossible to ascertain by a direct analysis the various kinds of animal and vegetable matter which float in minute quantities in the atmosphere, yet some information on the subject may be obtained by examining the different sources from which this matter is supplied. As there is a far greater portion of carbon embodied in the vegetable than in the animal kingdom, it is on the changes attending vegetation that the amount of carbonaceous materials in the atmosphere mainly depend.

We are generally taught to look upon plants as mere fountains of oxygen gas, and to regard their vital functions as the great agency for renovating the air which has been rendered impure by the respiration of animals. But a closer examination of nature will compel us to modify this pleasing picture which has been given of her operations by a theory which is not wholly as correct as it is beautiful. Without attaching any credit to the extravagant stories of the Upas tree, whose poisonous exhalations are said to be fatal to life for many miles around, there are many facts to show that it is not only during decay, but even in the course of vigorous vegetation that plants add to the impurities of the air and increase its insalubrity.

Of all vegetable productions, the alkaloids, with few exceptions, hold a prominent place among the most deadly poisons known to the chemist. But in the very limited number of plants which produce them, these poisonous substances are found only in a small quantity; few of them are volatile, and there seems to be no possibility of their mingling with our atmosphere in a proportion which might be

injurious or dangerous to the human frame. From the vegetable acids there is still less to be apprehended, as they are for the most part less deleterious to life, and as their great solubility in water is sufficient to remove them from the air. But the organic compounds which flow more rapidly into our aerial ocean, and at the same time partake most of the characters ascribed to malarious emanations, are the volatile or essential oils which are constantly emitted by living and decaying plants. From the emission of these volatile principles generally arises the peculiar smell or the perfume which the various parts of plants diffuse. Their presence in summer produces the pleasing or occasionally the disagreeable odors of our fields and forests, and the delightful fragrance of the groves of tropical climates give indications of the abundance in which the vapors of these oils are poured into the atmosphere.

That this class of bodies form an important part of the malarious emanations of marshes may be inferred from their ready evaporation and from the manner in which it is influenced by heat. Though most of the essential oils have their boiling points ranging between 300 and 450 degrees Fahrenheit, they emit an appreciable amount of vapor at extremely low temperatures. It may appear singular that liquids so reluctant to boil should be so volatile or so ready to evaporate; but this apparent anomaly is the necessary consequence of the great density of their vapors, and they observe a conformity to Dalton's law in regard to vaporization. Thus, for instance, of spirits of turpentine, which boils at 316 degrees Fahrenheit, the vapor would have at 100 degrees the same tension which that of water has at 4 degrees below zero, and this according to the experiments of Gay Lussac, may be estimated at 1-600 of the atmospheric pressure. From this we may calculate by the law of Mariotte that the vapor would be 600 times more attenuated than it is at the boiling point, when the density is 4.76, or nearly five times that of air. From this it may be estimated that at the temperature of 100 degrees the air is capable of permanently holding in a state of diffusion 1-125 of its weight of the vapor of spirits of turpentine.

Without insisting on the absolute universality of Dalton's law, I am convinced that it will apply without any material error to the vaporization of the essential oils. As in the case of evaporated water it is the power of heat alone that determines the amount of these bodies which can exist as vapor in a given volume of air or in a given space. At the temperature of 75 degs. 500 parts of air would be capable of holding in this manner two parts of the vapor of spirits of turpentine, but it could retain only one part if the temperature were reduced to 50 degs. As most of the volatile oils have a much higher boiling point than the one I have selected for illustration, they can pervade the atmosphere in a more attenuated condition. It would require about 2,000 parts of air at the temperature of 75 degs., or about 4,000 at 50 degs., to hold in a state of vapor one part of the oil of spirea, which boils at 383 degs. Fahr. Generally, the ferment oils, and others which contain oxygen have the highest boiling points, and require a higher temperature to maintain a given portion of them in a state of vapor above the earth's surface.

From the very limited amount of these bodies that can float in our aerial ocean, and the influence of heat on the existence of their vapors, there can be little doubt that in the marshes of warm climates, the great luxuriance of vegetation and also its decay, would cause the air to be saturated with these volatile oils during the day, and that they would be deposited at night like dew, but in a less perceptible quantity. As evidence of the dependence of intermittent fevers on such exhalations, I may refer to the circumstance that in the most unhealthy districts where it prevails malaria assumes an increased malignity during the night. The fact seems to have much engaged the attention of medical writers, and ELLIOTSON concludes that at night the malarious poison must have been deposited from the air. That in the absence of any volatile or aerial poison mere changes of temperature might be productive of such distempers can not be admitted, as these changes are far greater in the dry and colder localities, which are comparatively free from intermittent fevers. From the researches of TYNDALL, it appears that not only clouds, but even moist air, impede the radiation of heat, and by thus preventing the earth from receiving too much heat during the day, and parting with much at night, they tend to avert great fluctuations in the thermal condition of climates.

The warmest regions of the earth produce most abundantly the volatile oils, as well as other organic compounds containing little or no oxygen, as if the separation of this element from carbon and hydrogen required all the energy which heat confers on vegetative power. As water contributes to the luxuriance and vigor of vegetation, it must also increase the production of these volatile bodies, and send them more rapidly into the air by a kind of exhalation peculiar to vegetable life. The agency of this fluid on dead organic matter is attended with similar effects. The essential oils of spirea and that of bitter almonds are indebted to aqueous action for their origin; and generally, in accelerating decay and putrefaction, water is the means of introducing numerous ferment oils into the atmosphere. But it is to the slight solubility of these volatile bodies in water that we must ascribe much of the evil effects with which rains, and especially occasional showers, are attended in malarious districts. The volatile oils which rise high above the ground are brought down by the descending drops of rain,

and becoming warmer the water thus impregnated with them they are again exhaled from the soil; but they are rendered more injurious to man by being thus confined to the lower stratum of the atmosphere and diffusing themselves throughout its mass.

The foregoing principles will serve to explain some facts which are at variance with the received theory of intermittent fevers. These diseases do not withhold their attacks until the work of decay proceeds on any considerable scale; but they commence and often display their greatest malignity when vegetation is in its greatest vigor, thus showing that they are at least as much dependent on the exhalations of living as of dead plants. In many cases, also, their attacks begin so soon after rain that they cannot depend on the results of putrefaction alone. The insalubrity of marshes appears to have some dependence on the kinds of vegetation which they produce; as, for instance, heat formations, though always in a moist condition, are free from malaria, and the exemption is principally due to the absence of plants capable of affording the noxious volatile oils during their growth and decay.

Apart from the effects which I have ascribed to occasional showers of rain, the great density of the vapors of the essential oils would tend to keep them close to the earth's surface, and thus render them more capable of affecting the human frame. Even in the absence of chemical union, unequally dense gases would mix with uniformity; but to the law of diffusion in gaseous mixtures, vapors do not strictly conform, and when their tension and expansibility are feeble, their position is determined by their specific gravities—the heaviest sinking to the lowest stratum of air. A like deviation from the principle of mutual diffusibility seems to prevail in gases when highly rarified, as the upper part of the sun's atmosphere consists mainly of hydrogen gas, the lightest body known. It has, however, been proved by FARADAY's experiments, that heavy vapors are incapable of rising above a certain level, so that the vapors of the volatile oils must be consigned to the lower stratum of the atmosphere, and thus rendered more injurious to man.

But the most conclusive evidence on this question is afforded when the inevitable changes which these emanations must undergo is taken in connection with the peculiar manner in which malaria is known to decline. From observations made in Italy it has been found that the virulence of marsh poison is manifested not more than three miles from its source. During the short time of its diffusion within this range it loses its noxious properties, and there is no class of vegetable productions which change so rapidly as the essential oils, especially after their vaporization. If exposed to air in a liquid form they gradually become resins by combining with oxygen, but when blended with the atmosphere in a state of vapor their oxidation and change to resins must take place with far greater rapidity. It is the oxidation of the volatile oils which some flowers emit that gives them a temperature higher than that of other parts of the plant; but in their tendency to oxidize these bodies exhibit much difference, though not to same extent as the fixed oils.

From some recent experiments and researches of FRANKLAND, it appears that the muscles are the seats of the combination of the blood with the oxygen taken in at the lungs. My own investigations have, indeed, led me to a similar conclusion, but they show also oxidation is most active at the points where the fibers of the motor nerves terminate in the muscles. Now, if through the medium of endosmosis, cutaneous absorption on the aeration and circulation of the blood, any essential oils were introduced into the muscles, their oxidation about the entrance of the nerves would form resins, which, instead of being removed from the system, would only serve to obstruct or to seal up the nervous tubes, and thus diminish or suspend calorific action. In most cases, however, these barriers or restraints would be removed by the pressure of matter accumulated in the nerves, or by some vital reaction an excessive oxidation of the blood and development of heat would then take place, but the resinous matter would still remain, and with its aid the volatile oils impregnating the system would require only a few days to obstruct again or to stop the communications between the nerves and muscles.

In this manner we may account for the chill with which intermittent fever commences, the subsequent heat and sweating, and the recurrence of the paroxysm every few days. As some of the ferment oils have the character of alcohols, they would not act in the precise way I have described, but they might prove injurious to the system by dissolving the fatty matter, and, on losing their solvent power by oxidation, depositing it at the junction of the nervous and muscular fibers, when, in consequence of the debility of the human frame, or the great abundance of vegetable poisons, the fatty or resinous obstructions cannot be removed, remittent fever may result, either from some rupture of the nervous tissue, or from the imperfect manner in which the blood is oxidized.

But the existence of the latter class of diseases, or at least their malignity, seems to depend on poisons generated in the human frame, and it is, perhaps, to changes in animal matter that we are to look for the origin of those poisons and miasms which have the most noxious characters, which retain them for the longest time and diffuse them over the widest range, as they are transported to distant localities by the flow of rivers or by those great currents of air which are in perpetual motion over the surface of our planet.

MEDICAL AND SURGICAL REPORTER

PHILADELPHIA, DECEMBER 16, 1871.

S. W. BUTLER, M. D., D. G. BRINTON, M. D., Editors.

☞ Medical Society and Clinical Reports, Notes and Observations, Foreign and Domestic Correspondence News, etc., etc., of general medical interest, are respectfully solicited.

Articles of special importance, such especially as require original experimental research, analysis, or observation, will be liberally paid for.

☞ To insure publication, articles must be *practical, brief* as possible to do justice to the subject, and *carefully prepared*, so as to require little revision.

☞ Subscribers are requested to forward to us copies of newspapers containing reports of Medical Society meetings, or other items of special medical interest.

We particularly value the practical experience of country practitioners, many of whom possess a fund of information that rightfully belongs to the profession.

The Proprietor and Editors disclaim all responsibility for statements made over the names of correspondents.

THE REPORTER—1872.

We have everything to encourage us to begin the year 1872 with **energy** and a determination to make the MEDICAL AND SURGICAL REPORTER *a better journal than ever*. The past has been by far the **best year** it has ever known. Its **circulation** has steadily increased, and is increasing. We have every reason to believe that we shall add **one thousand new subscribers** to our list in the next three months, **outside** of the direct efforts of our present subscribers. ☞ Let *them* exert themselves and **our list will be doubled in that time.** Come, friends, try it now, and benefit yourselves and the cause of medicine by strengthening our hands! Always get the $5 in advance and then retain one dollar cash for every annual payment from *new subscribers you send*, or order $1.25 worth from our office in books, instruments, etc. *If you work for us we want to pay you for it.* Five new subscribers will pay your own subscription, or get you $6 worth of books, etc. Our present subscribers are the best agents we can have, for they know the worth of the REPORTER. Now, be active in the next four weeks—and let us start the new year with a **rousing list of new subscribers!!**

The *Pocket Record* for 1872 is now ready. Those desiring a copy in season for beginning the year, should give us ample time to send it. But the *Record* can be used from any date. The patent clasp is a feature that makes it very popular with the profession, as does also the preliminary pages which contain a great deal of valuable information.

DID SYPHILIS COME FROM AMERICA?

This famous historical question, which everybody thought had been settled long ago in the negative, has recently been reopened with a powerful array of arguments in the affirmative by Dr. ALFRED FOURNIER, of Paris, Dr. FERRARI, the well-known surgeon of Paris, and Dr. CHARLES DRYSDALE, of London.

The latter, in a general summary of the arguments which he confesses have worked his own conversion from an opposite view, says, in the *Medical Press and Circular*, for Oct. 25, 1871, after disposing of all the alleged cases of syphilis described in sacred and profane ancient history:

"Whence, then, did the disease come to us? Although the Americans accuse the Europeans of having carried this disease to them, nevertheless, according to the opinion most universally adopted by the learned men in the congress of Nantes, in 1835, it would seem that it is a disease of very ancient origin in America, and that, according to BECHI and SANCHEZ, it came to Europe only at the end of the 15th century, brought by the companions of COLUMBUS. And there is, indeed, a most powerful argument to prove this in COLUMBUS himself, who asserts that, when he returned the second time to the New World, he found among the Spaniards who had been left there, to study the manners of the savages, a monk, who, having learnt their language, was able to tell him what he had observed, and particularly the fact that, among the Indians, there existed very commonly a disease they called *caracaracol* and which showed itself as a scab over the body. This, too, is just the time, when we see arise throughout Europe, for the first time, syphilis among the nations. ANTONIO BENIVIENI, a most distinguished physician of that time, writes: 'Novum morbi genus anno salutis nonogesimo sexto supra mille quadrigentos, a christiana salute non solum Italiam sed fere totam Europam irrepsit. Hoc ab Hispania incipiens per Italiam ipsam primum tum Galliam Cæteresque Europæ provincias late diffusum mortale quamplurimas occupavit.' And in the same strain wrote Allessandro Benedetti (1496); Corradino Gilino (1497); Gaspare Torella

(1497); and Bartholomeo Montagnana (1498); and a little later, G de Vigo (1514); G. Fracastor (1546); Antonio Brassavola (1553); and Gabriel Fallopius (1566). And if we desire yet ocular testimony, we may cite the physician Diaz di Isla, and the historian Oviedo, who both had numerous opportunities of speaking with Genovese, in Barcelona. Besides these, Guicciardini and Bembo, speak of it as quite a new disease.

"The 4th of March, 1493, was the miserable day in which syphilis appeared in Europe—Lisbon, Seville, Barcelona, and Gallizia, and where the ships of COLUMBUS landed, these were the first spots rudely infected. In Barcelona, as DIAZ DI ISLA narrates, the venereal disease was shortly so spread that public prayers and fastings were offered up to God, in order that they might be delivered from it. When, in the month of August, 1494, Charles VIII. went with a large army to Naples to conquer that kingdom, from thence gradually also in Italy did the terrible disease manifest itself, so that the French called it *mal de Naples*, and the Italians called it *mal francese*."

The point in the above narration of events which we propose to examine at present is, whether the disease referred to by the monk left by COLUMBUS, under the name *caracaracol*, was syphilis or not.

This monk's name was ROMAN PANE, a Catalan, and a lay brother of the Hieronymite Order. He was an illiterate man, and knew but slightly one of the three languages in San Domingo, where he was left by COLUMBUS. During his stay he collected the ancient traditions of the natives, and wrote them down in Spanish. One of these traditions relates that the earliest of the human race were created all males. They searched for women, but found none. One day, however, they perceived certain creatures, with slippery skins, who ran with great swiftness, and who slipped from their grasp when caught.

To retain them, the men chose four of their number, who were *caracaracol*, because these had their hands rough and could hold on to whatever they grasped. The *caracaracol* is a disease like the scurf (*comme la gale*) which makes the body very rough.

This description cannot rightly be applied to syphilis, but rather to any of the furfuraceous diseases of the skin. The fact that the disease appears on the inner surface of the hand also serves to show that it is not likely to have been syphilis.

The word *caracaracol* is derived from *caracol*, a small univalve shell with a rough surface, and refers to the roughened appearance of the surface on the disease. The same word is now used in a modern form by the Arawack Indians of Guiana, who speak the language spoken by the natives of Hayti at the time of COLUMBUS, but it is *not* by them confined to syphilis, but means any sickness.

Brother PANE, we may add, devotes several chapters of his narrative to describing the native physicians, the herbs they used, and how they cured their patients. As he presented his report to the Admiral at his third voyage, and after the syphilis had broken out in the Spanish army and navy, it is highly probable that it was supposed to have been caught from the native women, he would have said something about it.

Without expressing any opinion on the other branches of the question under discussion, we confidently assert that no evidence has yet been brought forward that the American Indians were acquainted with syphilis before it was introduced among them by the European settlers.

ANTIQUITY OF MAN ON THE EARTH.

This interesting question has occupied the attention of several learned bodies during the past summer. At the meeting of the British Association for the advancement of Science, Professor DUNCAN, read an able summary of the latest results.

It appears from this paper that no trace of man has been found associated with any deposits formed during the glacial period in Northern Europe. The earliest remains of

man and his works, and of the beasts associated with him and hunted by him, rest upon the deposits resulting from glacial causes, and are, therefore, later in time. A second period, however, of mountain glacialization took place, when the glaciers of the Alps and Pyrenees especially extended far into the districts below them. This was subsequent to the existence of man, since the mud and gravel produced by the grinding down of the mountain sides during this period, and its stratification over the plains, are found to cover the remains of man and his works; and, therefore, to be of a later epoch.

This second glacialization, and the arrangement of the wash, are suggested as forming a line of separation between the paleolithic period, when man used rude stone weapons, and the neolithic period, when smooth and polished instruments were manufactured, and, in a general sense, marking the time when the great mammalia disappeared from the northern and western parts of Europe.

It was a matter of the most significant interest that the osteological remains in either period are strictly similar to those of the present day in their most essential characters. When the reverse of this seems the case, it is always found on close examination to be explicable on the ground of individual differences. Some human remains, which were described by Prof. BUSK in an essay published in the Journal of the Ethnological Society, Jan., 1871, presented points of very high interest; for while the skulls were rather above than below the present average cranial capacity, some of the leg-bones were remarkable for the peculiar antero-posterior flattening or platycnemism of the shin-bones. And this flattening was caused by the prolongation of the bone in front of the inter-osseous ridge, and not in any degree by its posterior extension, which is the distinctive feature of the tibiæ found in the caves of Cro Magnon and of Gibraltar. The fact that these platycnemic leg-bones were associated with others of the ordinary forms, and for the most part belonging to the young, and probably to females, while the skulls were of the same type, proves that the character is not one of race, as M. BROCA believed, but rather one peculiar to the individual and perhaps to the sex.

Notes and Comments.

The American Medical Association.

The next meeting of the American Medical Association will be held in this city next May. The Committee of Arrangements—its active members at least, Dr. EDW. HARTSHORNE, and Dr. W. B. ATKINSON—have already been hard at work, and laid the foundation for a large attendance, and it is to be hoped a useful meeting. Horticultural Hall has been secured to hold the sessions in, and excellent arrangements will be made for the accommodation of committees and the sections. The various rooms of the hall of the College of Physicians in the neighborhood will be used for the display of instruments, new inventions and articles generally of interest to the medical profession.

Arrangements have been made with some of our principal hotels, and in private families, for board at reduced price. The restaurant in the Horticultural Hall will supply meals on favorable terms to any who choose to take lodgings at hotels on the European plan, and take their meals out. By these arrangements the expenses of physicians and their families who attend the meetings can be materially reduced. Further information will be given in our columns when all the arrangements are completed, or can be had by addressing the permanent Secretary, Dr. W. B. ATKINSON, 1400 Pine street, Philadelphia.

Rapidity of Conduction in Motor Nerves.

HELMHOLTZ and BAXT (*Monatsbericht der Berlin Acad.*, 1870, 184) in their new researches on the rapidity of conduction in motor nerves, use the same method as before, the arm being immovably fixed in plaster of Paris, and the median nerve irritated, first above the elbow and then at the wrist. The contractions which are thus produced in the muscles of the ball of the thumb are regis-

tered by MAREY's myograph. Instead of using a revolving cylinder, the curves were registered by FICK's plan, on a glass plate attached to the bob of a pendulum, which, in the middle of its swing, caused a spark from an induction coil to irritate the nerve. They found that a higher temperature increases the rapidity of conduction in human nerves as well as those of the frog. Conduction is quicker in the upper than in the forearm, and this seems to depend on unequal conduction in the nerves themselves, independently of any difference between the temperature of the parts. When the nerve was irritated by shocks quickly following one another, the contraction of the muscle was no more powerful than when only one was employed, unless an interval of more than one five-hundredth of a second intervened between them. Constant currents, especially descending ones, readily produced tetanus in the muscle, during which oscillations lasting ·09 of a second took place in it.

Spongy Iron.

Attention has recently been directed to the energetic action which spongy iron exerts upon organic matters in purifying waters. It is asserted that impure water may be made potable with remarkable rapidity, by the use of a filterer, properly constructed, of this material.

Correspondence.

DOMESTIC.

The Antidote for Rattlesnake Venom.

EDS. MED & SURG. REPORTER:

In the *Compendium*, No. 7, page 56, and No. 8, page 59, and in the REPORTER, No. 746, page 512, I find articles concerning the long discussed snake story. I will now give you my remarks and opinions on this topic.

I was for about four years Military Surgeon in the East Indies, and you can believe that in the home of the most venomous snakes, the serpent thema is often discussed, because you hear almost every month a case of fatal bite. In the past year I saw a letter in the New York *Medical Gazette*, No. 148, page 221, from the State of Magdalena. The same principle recommended by Mr. S. B. HIGGINS, I learned before from an old Naib in the city of Socrakarta, and wishing to prove it, I procured a rattlesnake with nine rattles, and kept it for six months in a cage at my office. The boy who brought him was bitten, but it did him no harm; he did not catch the rattler before he was bitten several times, but it was through a piece of flannel, and of course the poison was all wiped off.

Some weeks after the snake was in my possession, I caught in my own house a so-called egg-snake, five and a half inches long, and placed her in the same cage with my rattler. The next morning I saw nothing more of her, but the rattler seemed to feel extremely well, so much so, that he jumped against the wires of his cage if anybody came near, and I was able to collect a few drops of venom. Thinking him now angry enough I began my experiment. I placed a rabbit in the cage. Soon after he was bitten, and immediately I took him out. The poor fellow was in a deplorable state; his extremities began to tremble, and the eyes became injected (under the ophthalmoscope, I saw the pulsation of the much enlarged vessels). Believing him in a state which was lethal in the shortest time, I gave him the antidote:

℞ Fel. crotali horridi, gtt.j.
Spiritus vini rectificati, gtt.x.
Misce, bene agitando. Dose—Five drops in a tumblerfull of water; every five to fifteen minutes a tablespoonful.

N. B. For my rabbit I took only two drops, and gave it him in teaspoon doses.

After the third dose the convulsions ceased; after the fifth he did not look so anxious, and now raised up; and after I had given all, he was well enough for me to leave him.

The next morning I could discover nothing irregular on him, except a slight swelling on the neck (the place where he was bitten), and he took his cabbage leaves as ordinarily. I have not had the oppertunity to treat a case in man, but in any case that I may be called upon to treat, it will be the remedy that I shall try.

Concerning the habits of my pet, I can recommend him as a most observing watchman; nobody could make the slightest noise, in or outside the house, but he notices it and begins to rattle.

As food, he preferred mice, with which he liked to play for several hours before destroying. He changed his skin twice while in my possession, and only one time after he had consumed the eggsnake did I see his fæces in the cage, consisting of a gray mass. After I kept him for four months I received a prairiesnake about six inches in length, the light colored kind with black tongue. I placed her by the rattlesnake thinking he would eat her, but I was disappointed; she began to fight, but the rattler had changed his habits. After biting the prairie serpent for several times he left her, and the two lived for two months more in the best harmony. But one morning I found my rattler had died and the prairiesnake was surviving. Next summer I will repeat my experiments, and will report you the effects after vaccination with serpentaria virginia.

R. STERN, M. D.

Fredericksburg, Texas.

News and Miscellany.

A "Learned Tellicotius."

President Thiers recently had it brought to his notice that an American, Dr. Charles B. Brigham, a Harvard graduate, had achieved a wonderful operation on a French soldier, and therefore invited the surgeon and his patient to visit the executive mansion. The operation consisted in replacing the face of a soldier found on the battle-field. A complete face has been substituted, even to teeth and eyes.

Contagious Epidemics.

M. Chauveau has laid before the French Academy of Science the results of his researches on contagious epidemics. He had previously shown that the contagion caused by virulent humors depends not on dissolved substances, but on solid corpuscles which they hold in suspension; in fact inoculation with dissolved substances remains without result, and that with corpuscles produces characteristic results. By similar experiments M. Chauveau proves that the miasms diffused in the air are not disengaged gases, but solid corpuscles. The fluid obtained by condensing the vapor arising from the evaporation of a virulent liquid may be used in inoculation without danger, while the primitive liquid retains all its contagious properties. The same results were obtained in experimenting with the virus of small-pox, the rot, the epizootic typhus, etc.

Wedgewood the Discoverer of Photography.

An English author, Miss Meteyard, remarks in her life of Wedgewood, that the earliest mention of the photographic art is a discovery by Thomas Wedgewood in 1791. She gives a *fac simile* of the earliest sun picture on record, and states that she has traced the connection between the Wedgewood family and the Frenchman Dominique Daguerre. This version of the origin of the universal and beautiful art of photography shows it to be much older than people generally suppose, and adds an additional lustre to the name of Wedgewood.

Animal Phosphorescence.

M. Panceri has recently given to the Congress of Naturalists and Physicists at Turin, an account of his investigations of animal phosphorescence. He concludes that this phenomenon is due to the slow combination of oxygen with the adipose tissue, since it immediately disappears on placing the phosphorescent matter in any medium free from oxygen. Phosphorescence commences soon after the death of the animal, and when decomposition sets in it ceases.

Obituary.

Dr. Adams Nichols.

At a special meeting of the Adams County, Illinois, Medical Society, held November 25, 1871, the following resolutions were unanimously adopted:

Resolved, That we have learned, with deep regret, of the death of Dr. Adams Nichols, one of the founders, and, throughout the whole period of its existence, an honored member of this Society.

Resolved, That though he had reached the allotted space of human life finished his work, and has been gathered, as a shock of corn, full ripened, yet we deplore the loss of one whose mental capacity, scientific attainments, and tireless industry, fitted him for the office of counsellor and friend to his professional associates, and as a Christian gentleman, whose sterling integrity and manliness, as exemplified in every relation of life, combined with genial manners and large social qualities, so endeared him to all that his decease brings to us a sense of personal bereavement.

Resolved, That when the society adjourns it be to attend the funeral of the deceased.

Resolved, That these resolutions be published in the daily and weekly newspapers of this city, and in the Philadelphia Medical and Surgical Reporter, the Chicago *Medical Examiner*, and the *Medical Archives* of St. Louis.

[A personal and professional acquaintance with Dr. Nichols, extending over several years, causes us to share the regret at his death expressed in the above resolutions. He was one of the early physicians of western Illinois, and was loved and esteemed by all who knew him.—Eds. Reporter.

Marriages.

Baker—Short.—At Payson, Ill., by Rev. S. A. Wallace, November 30, 1871, at the residence of Dr. M. Shepherd, Dr. James Baker, of Adair, Ill., and Miss Emma A. Short, of Payson.

Bradner—Gatzmer.—Dr. N. Roe Bradner, who has occupied the position of assistant resident physician at the Pennsylvania Hospital for the Insane for several years past, was married, recently, to the daughter of our esteemed fellow citizen William H. Gatzmer, Esq., and has resumed the general practice of his profession in this city.

Buffington—Scroggs.—At South Salem, Ross county, Ohio, November 21, Dr. M. M. Buffington and Miss Rachel W. Scroggs.

Groves—Paxson.—At the parsonage, St. George's, Del., on November 28, by the Rev. David J. Beale, Benjamin B. Groves, M. D., of New Castle, and Miss Sallie Paxson, of Kirkwood, all of New Castle county, Delaware.

Kilpatrick—Perkins.—November 9, by the Rev. D. C. Marquis, William D. Kilpatrick and Rebecca H., daughter of the late Dr. Joseph F. Perkins, all of Baltimore.

Lord—Fowler.—On December 6, in New York, at the Church of the Ascension, by the Rev. John Cotton Smith, D.D, Dr. Benjamin Lord and Miss Juliet, daughter of Mr. Charles Fowler, all of New York.

Savin—Wheat.—In Elizabeth, N. J., December, 6, by Rev. Dr. Kempshall, Frank W. Savin and Arieba R. Wheat, daughter of Dr. J. B. Wheat.

Smith—Hopkins.—In Cincinnati, at the residence of the bride's father, November 16, Mr. Charles H. Smith and Miss Belle E., second daughter of R. B. Hopkins, M. D.

Died.

Bannan.—Dr. Douglass B. Bannan, Surgeon in the U. S. Navy, died at the Charlestown Navy Yard on the 16th of November. He was a graduate of Yale College, in the class of 1852. He served with credit in the war for the Union, and afterward accompanied Admiral Farragut in the celebrated cruise of the Franklin. He was an accomplished and excellent man, whose early death is deeply to be deplored.

Boorman.—December 2, 1871, at his residence, No. 33 West Forty-third street, New York, Dr. Augustus C. Boorman, aged 46 years.

Marette.—At New Orleans, November 27, Louis Marette, M. D., aged 54.